UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,114	10/29/2003	Robert Sala	03-650	7266

34704 7590 02/27/2006

BACHMAN & LAPOINTE, P.C.
900 CHAPEL STREET
SUITE 1201
NEW HAVEN, CT 06510

EXAMINER	
HUSON, MONICA ANNE	
ART UNIT	**PAPER NUMBER**
1732	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/696,114	SALA ET AL.	
	Examiner	Art Unit	
	Monica A. Huson	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *020504,102903*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9, 11-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macdonald (U.S. Patent 4,938,825), in view of Ibar (U.S. Patent 5,543,092). Regarding Claim 1, Macdonald shows that it is known to carry out a method for manufacturing a fiber-reinforced plastic component (Abstract) comprising providing a starting material (Column 4, lines 25-30); preparing a starting mixture from the starting material, wherein the starting material is processed in a plasticizing unit to yield a low viscosity, homogenized, reactive starting material (Column 4, lines 40-66); and injecting the reactive starting mixture into a cavity of a mold containing a fiber mass, wherein the reactive starting mixture along with the fiber mass is transformed by means of a polymeric reaction into the fiber reinforced plastic component (Column 5, lines 42-48; Column 6, lines 50-68). Macdonald does not specifically show using a screw feed system using the application of heat during his plasticization process. Ibar shows that it is known to carry out a method of making a plastic article wherein plasticizing takes place using a screw feed system under the application of heat (Column 9, lines 54-58). Ibar and Macdonald are combinable because they are concerned with a similar technical field, namely, methods of molding thermoplastic articles. It would have been prima facie obvious to one of ordinary skill in the art

at the time the invention was made to use Ibar's screw mechanism during Macdonald's plasticization process in order to most efficiently carry out plasticization.

Regarding Claim 2, Macdonald shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show using a screw extruder. Ibar shows that it is known to carry out a method wherein the plasiticizing unit is part of an extruder device, and the homogenized, reactive starting mixture is conveyed from the plasticizing unit by means of the screw extruder (Figure 1, element 46; Column 9, lines 54-64). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Ibar's screw extruder mechanism during Macdonald's plasticization process in order to most efficiently carry out plasticization.

Regarding Claim 3, Macdonald shows the process as claimed as discussed in the rejection of Claim 2 above, including a method wherein the starting mixture is conveyed via a supply line from the plasticizing unit into a reservoir of a transfer unit and is injected by means of a pump unit at least one injection feed pipe from the reservoir into the cavity of the mold (Figure 1, element 40; Column 5, lines 1-13), meeting applicant's claim.

Regarding Claim 4, Macdonald shows the process as claimed as discussed in the rejection of Claim 1 above, including showing the use of a measured feed space in front of a mixing unit (Figure 1, element 40), but he does not specifically show using a screw system or pistons adjacent the measured feed space. Ibar shows that it is known to carry out a method wherein the plasticizing unit is part of an injection molding device, and the homogenized, reactive mixture is conveyed into a measured feed space situated in front of the screw system and conveyed by means of pistons from the measured feed space of the plasticizing unit (Figure 1, element 46, 50,

52). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Ibar's apparatus configuration during Macdonald's molding process in order to carry out the molding as efficiently as possible.

Regarding Claim 5, Macdonald shows the process as claimed as discussed in the rejection of Claim 4 above, including showing movement of material from a measured feed space into the mold cavity (Column 5, lines 1-13), but he does not show a piston adjacent the measured feed space. Ibar shows that it is known to carry out a method wherein the starting mixture is injected from the measured feed space of the plasticizing unit by at least one injection feed pipe into the cavity of the mold by means of a piston (Figure 1, element 52, 20). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Ibar's apparatus configuration during Macdonald's molding process in order to carry out the molding as efficiently as possible.

Regarding Claim 6, Macdonald shows the process as claimed as discussed in the rejection of Claim 4 above, including a method wherein the starting mixture is conveyed via a supply line from the plasticizing unit into a reservoir of a transfer unit and is injected by at least one injection feed pipe from the reservoir into the cavity of the mold (Figure 1, element 40, 50), meeting applicant's claim.

Regarding Claim 7, Macdonald shows the process as claimed as discussed in the rejection of one of the claims 1-6, including a method wherein the starting mixture is in the plasticizing unit exhibits a fluid consistency and the viscosity of the starting mixture on leaving the plasticizing unit until it enters the cavity of the mold is manipulated so that it remains a fluid consistency (Column 6, lines 13-53), meeting applicant's claim.

Regarding Claim 8, Macdonald shows the process as claimed as discussed in the rejection of Claim 7/1, 7/2/1, 7/3/2/1, 7/4/1, 7/5/4/1, or 7/6/4/1, including a method wherein the step in which the starting mixture is injected into the mold is regulated electronically by means of valves (Column 6, lines 25-27; It is interpreted that the pumps will comprise valves.), meeting applicant's claim.

Regarding Claim 9, Macdonald shows the process as claimed as discussed in the rejection of Claim 8 7/1, 8/7/2/1, 8/7/3/2/1, 8/7/4/1, 8/7/5/4/1, or 8/7/6/4/1above, but he does not show thermally decoupling the mold from the previous process machinery. Ibar shows that it is known to carry out a method wherein an injection feed pipe proximate to the related valves comprises means to decouple the mold thermally from a transfer unit and from a plasticizing unit (Column 9, lines 37-41; Column 10, lines 16-20; Column 19, lines 46-52; Column 22, lines 53-63). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Ibar's temperature control theory during Macdonald's molding process in order to most accuately control the thermal environment of the molding system.

Regarding Claim 11, Macdonald shows the process as claimed as discussed in the rejection of Claim 7/1, 7/2/1, 7/3/2/1, 7/4/1, 7/5/4/1, or 7/6/4/1 above, including a method wherein the starting material comprises prepolymers mixed with an activator which accelerates the polymeric reaction (Column 6, lines 13-56; It is being interpreted that the polymer before the mixing (i.e. reaction) can be termed a prepolymer.), meeting applicant's claim.

Regarding Claim 12, Macdonald shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the plastic matrix produced from the reactive starting material is thermoplastic (Column 2, lines 52-55), meeting applicant's claim.

Regarding Claim 13, Macdonald shows the process as claimed as discussed in the rejection of Claim 1 above, including showing a starting mixture containing prepolymers mixed with an activator for polymeric reaction with the prepolymer (Column 4, lines 25-43), but he does not show specific thermal characteristics of his starting mixture. Ibar discloses that the temperatures characteristics of his starting mixture will vary depending upon the desired end results (Column 19, lines 46-67; Column 20, lines 1-6). It is being interpreted that this disclosure suggests the claimed limitations wherein the melting temperature of the starting mixture is lower than the melting point of the plastic component produced from the starting mixture and the ideal reaction temperature for the starting mixture is higher than the melting temperature of the starting mixture and lower than the melting temperature of the plastic matrix. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Ibar's relative temperature theory during Macdonald's molding process in order to obtain a molded article without overprocessing or underprocessing the molding material.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macdonald and Ibar, further in view of Eckardt et al. (U.S. Patent 6,468,464). Macdonald shows the process as claimed as discussed in the rejection of Claim 7/1, 7/2/1, 7/3/2/1, 7/4/1, 7/5/4/1, or 7/6/4/1 above, but he does not show using dry solid material for the starting material. Eckardt et al., hereafter "Eckardt," show that it is known to carry out a method of manufacturing a fiber reinforced plastic object wherein the starting material is in the form of a dry solid material such as powder or granulate (Column 4, lines 55-57). Eckardt and Macdonald are combinable because they are

concerned with a similar technical field, namely, methods of injection molding plastic. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Eckardt's dry solid filler in Macdonald's process in order to avoid the complications that arise with liquid ingredients (e.g. difficulties in storing and handling).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macdonald and Ibar, further in view of Pearce et al. (U.S. Patent 5,348,985). Macdonald shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show a specific plastic matrix. Pearce et al., hereafter "Pearce," shows that it is known to carry out a method wherein the plastic matrix produced from the reactive starting mixture is a polybutylene terephthalate (PBT) and contains cyclic oligomers of the PBT (cPBT) mixed with a zinc catalyst (3, lines 7-10, 64-68). Pearce and Macdonald are combinable because they are concerned with a similar technical field, namely, methods of molding thermoplastic articles. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Pearce's specific composition as that in Macdonald's molding process in order to obtain an article with desired characteristics of the specific composition.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patent is cited to further show the state of the art with regard to manufacturing plastic reinforced objects in general:

U.S. Patent 5,364,584 to Imanara et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A. Huson whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monica A Huson
February 17, 2006

MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER